

**SPECIAL CONTRIBUTION**

**DISCUSSION AT THE COMMISSION  
FOR THE PRIVATIZATION OF THE FOUR HIGHWAY  
PUBLIC CORPORATIONS AND MY OPINION\***

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**1. PREFACE**

Since I was appointed to be a member of the Commission for the Privatization of Four Highway-related Public Corporations by the Prime Minister in June 2002, I had fully participated in the commission's deliberation for about half a year. I suppose readers of this journal are well aware of the outline of the discussion, because the process of constituting the commission and proceedings of the deliberation had drawn a great deal of public attentions nationwide and, as a result, were reported extensively by mass media. However, it is a fact that there are some ideas or analyses, which were not sufficiently reported in details through these media.

I have been involved in the field of civil engineering, more specifically in the field of infrastructure planning, for many years through teaching and conducting research works. Compared to other civil engineering fields, infrastructure planning is quite new. As accumulation of the research results in this field is not enough, the field is not yet to be recognized as fully matured academic field. The central thrust of this field is to provide a systematic framework to decide on what kinds of infrastructure should be developed and what is the best method to develop them in order to maximize the social welfare. Since I had an opportunity to participate in discussions focused on actual planning problems, I presented the theoretical and practical aspects of infrastructure planning relevant to the issues under

discussion, and put my best efforts, together with my colleagues, to apply these insights to our actual situation.

It was indeed a new experience for me. We continued the deliberation among only seven commission members for about 130 hours in total, and in addition, the proceeding was fully opened to media representatives. Under such circumstances, I put forward my views from the perspective of infrastructure planning utilizing my expert knowledge. I explained, to the extent possible, the characteristic features and the significance of social infrastructure, such as roads, to the commission members and sitting journalists who had very little or no experience with studies in this field, and had very critical views against entire public work projects. Although the proposal I agreed to was not approved eventually, I certainly believe that many points I put forward will be utilized in the course of actual implementation of reform agenda henceforth. With this background, I think it is necessary to correctly inform the readers of this journal, who will be involved in infrastructure planning at present and in the future, about my experience with the commission's work. In the following sections, I will therefore describe what I thought, mainly about issues under discussion that I was primarily involved in, to clarify the difference between my opinion and the

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approved report finally presented at the commission's meeting.

## 2. BASIC GOALS

In principle, I support the government decision on the privatization of four highway-related corporations. I think the scope of task for this commission, as envisaged in the cabinet decision of December 2001 regarding the privatization scheme, can be summarized as the following four goals :

**(1) To pay back steadily the debt of four highway-related corporations approximately 40 trillion yen in total within 50 years.**

This debt was the result of accumulated borrowing mainly under the Fiscal Investment and Loan Program (FILP) of the Trust Fund Bureau by the four highway-related public corporations for the construction of expressways. The source of this fund is, in fact, the deposits made by citizens such as post-office savings or premium of employees' pension. Therefore, a sustained repayment is essential for maintaining stabilities of financial system and people's livelihood.

**(2) To construct necessary expressways using toll revenues from the existing expressways as much as possible**

For the past 40 years, expressways in Japan have been constructed using toll revenues from existing expressways. The total length finally reached 7,000 km (by the end of 2001, only taking into account the expressways of the Japan Highway Public Corporation). However, we cannot claim that the expressway network in Japan has reached a satisfactory level. Insufficiency of expressway network in Japan can easily be understood in terms of some common problems such as increasing regional disparity in quality of life or impediments to industrial development due to inconvenience of transport in some lagging regions or traffic congestion in some metropolitan areas. We may find even more compelling manifestations such as making a comparison with a case of country like Germany, where approximately 12,000 km of expressways with four or more lanes have been developed although their land area is a

bit smaller than that of Japan.

It is just reasonable as well as socially desirable to make use of toll receipts from the regions where expressways were already developed for the construction of demanding expressways in lagging regions, which are facing various kinds of regional disparity. And it is reasonable that road users bear the cost of construction. However, it should not allow an endless provision of cross subsidies to construct unnecessary roads just because of strong demands from certain regions or groups.

**(3) To improve social and financial efficiency throughout construction, management, and operation of expressways.**

It cannot be denied that in the course of expanding expressway networks over the past many years efficiency of expressway projects particularly in terms of the cost vs. benefit and the cost vs. revenues has been deteriorated gradually without being perceived. It is now imperative to make a significant improvement in project efficiency by adopting perspectives of private sector management and promoting social monitoring.

**(4) To set toll rate in a flexible manner and reduce toll rate for under-used routes in order to fully utilize road capacity.**

Majority of road users obviously wish for a reduction in toll charge. However, uniform reduction of toll rate across the nation is sure to imperil the future of entire expressway network projects, and may also cause further congestion on some routes due to induced traffic. On the other hand, there are quite a few routes, which are serving traffic volume much less than their design capacity primarily due to higher toll rate. It is necessary to reduce the toll charge for such under-used routes in order to utilize the full capacity of roads and effectively realize the expected impacts.

Even under the current system of four highway-related public corporations, it seems viable to pay back the 40 trillion yen debt within 50 years of the redemption period. For instance, in case of Japan Highway Public Corporation, the annual toll revenue is approximately 2.2 trillion yen and the management cost and interest payment is approximately 1.2 trillion yen, recording approximately 1.0 tril-

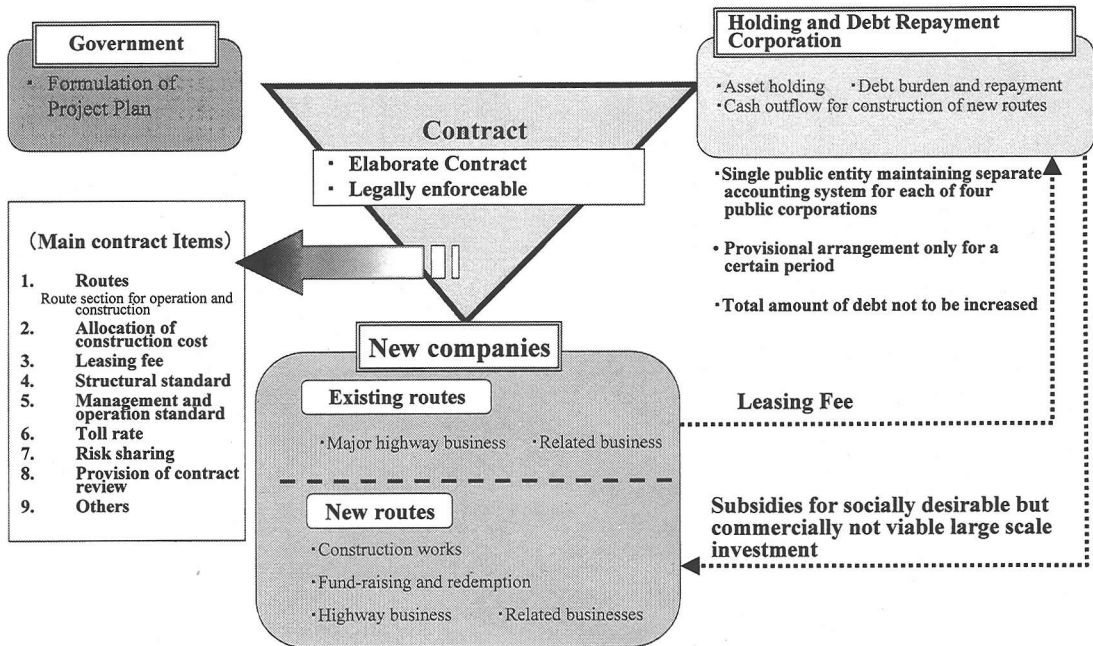


Figure 1. Basic structure of overall system

lion yen cash flow. Although the Honshu-Shikoku Bridge Authority has a debt of approximately 3.8 trillion yen, and the cash flow obtained by deducting the management cost and the other external costs from the annual revenue amounts to -65.5 billion yen, the cash flow of the other two urban expressway public corporations was approximately 116 billion yen for the year 2001.

The commission was required to propose a reform framework that embraces all of the above goals. For this purpose, the commission made efforts to find out an optimal arrangement under the process of drastic institutional change, namely privatization. Following sections will describe propositions taken by the author and others to achieve these goals.

### 3. PROPOSAL ON OVERALL ORGANIZATIONAL STRUCTURE

An expressway is, needless to say, a social infrastructure and possesses characteristics, which are much different from those of private assets. Therefore, its value should be evaluated by taking account of not only commercial profit, but also social benefits. However, when private sector is

entrusted with implementing the project as a way to improve efficiency, it is important to explore the most suitable institutional regime under which a private firm can effectively operate. Provision for secured commercial profitability should be the corner stone of such institutional arrangement.

The organizational structure shown in Figure 1 was proposed as an arrangement that makes management by private companies possible and ensures repayment of debt. Private sector expressway companies will operate existing expressways, collect toll from users, and take responsibility of maintenance and management for delivering quality services. Road assets will be owned by a newly established expressway-holding and debt-repayment organization. Expressway companies will obtain the usage right and pay leasing fee to the expressway-holding organization. The organization will take over the debt of four expressway-related public corporations, use the receipts of lease fee for the repayment of debts, and complete the payback within 50 years. Out of the receipts of lease fee, the organization will also allocate some funds for new investments and provides it to the companies as subsidies to build new routes. The expressway companies will thus secure the invest-

ment capital for new routes by mobilizing the public subsidy and other financing sources, which will be generated by future revenue from the new routes. When these companies judge that construction and operation of the new route is feasible from commercial viewpoints, the project will be executed. For the project execution, a detailed contractual agreement will be made with the government in terms of scope of the project and methodology of execution.

The proposed framework is similar to the so called "concession scheme" which has been practiced in France and Italy involving private firms in construction and operation of expressways.

A reason why both the asset and the debt are owned by a public entity, that is the expressway holding and debt repayment organization, is that this arrangement makes it possible to avoid additional financial burden in the form of various tax obligations such as corporate tax or real estate tax to be otherwise created.

I formulated the original draft of this proposition and presented it to the commission. At the time of the interim report of August 2002, most of the commission members agreed to this proposal, and the proposal was submitted as a commission's proposal. However, before long, some newspapers and other media criticized this proposal claiming that the proposal intends to endlessly implement construction of new expressways. Thereafter, the proposal that the new private companies do not hold assets was opposed by some members, and the provision of subsidies to the new companies by the expressway-holding public entity was opposed by a majority of members. The discussion on these issues was continued thereafter. However, the difference in opinion could not be reconciled even at the final stage of commission's proceedings.

#### **4. NEW CONSTRUCTION OF EXPRESSWAYS**

The total length of expressways in Japan has now reached approximately 7,000 km. In addition, new development plans have been approved for routes approximately 2,300 km in length, and out of these, execution orders have been issued for routes totaling 2,000 km in length, many of which are now under construction. Some commission members

strongly challenged that the expected impact of the construction of most of the 2,300 km routes is too insignificant, and the construction of the routes with early stage of work progress should therefore be immediately frozen.

On this issue, the author's idea was that the necessity of these routes should be judged on as much objective basis as possible, and the question of continuation or discontinuation should not be decided on the basis of subjective or political judgments but by detailed analysis. Therefore, I proposed that the route evaluation be carried out according to the following methods:

##### **(1) Analytical approach for making judgments on investment for new expressways**

Profitability of a route is obviously one of the key factors to be considered for, while the expressway is built and operated as a private business with cost burden taken by users. However, as an expressway is social infrastructure having multidimensional linkage with socio-economic system, the project appraisal should take account of not only user's benefit but also usefulness in improving living conditions in local areas. Therefore, I assume that road project should be evaluated from three viewpoints, namely economic effects, financial efficiency, and other external effects. The economic effect is reflected in the cost and benefit of users. This cost includes just the amount for remaining construction works, so that the progress of construction works can be reflected in the evaluation result itself. For instance, if 40% construction work is already completed, only the cost of remaining construction, which is 60% of the total construction cost, is considered while carrying out benefit-cost analysis.

Toll revenue vs. cost (total construction cost + operation and maintenance cost) represents the profitability evaluating financial efficiency. These revenues and costs are, of course, discounted to the present values using the social discount rate (4% is to be used). Other external effects that are difficult to measure are represented in terms of (1) regional connectivity effects (2) Livelihood and safety effects and (3) effects for stimulating regional economic growth. These effects are further broken down into the effects shown in Figure 2. In order to provide these effects with the objective indices as

## Indicators

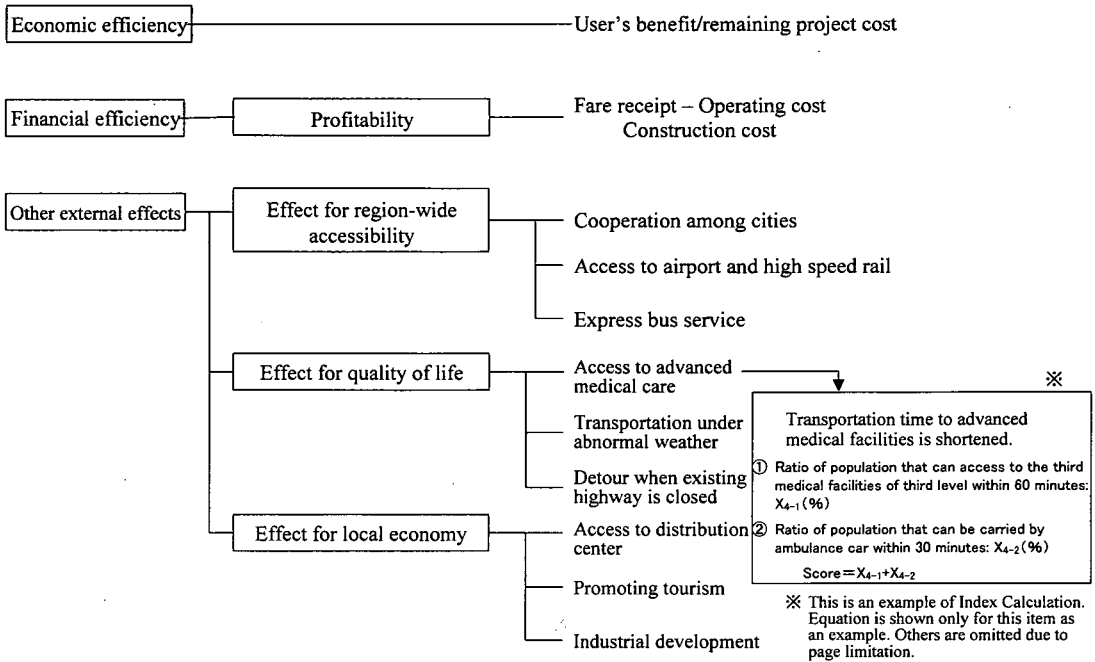


Figure 2. Items for evaluation of expressways

much as possible, they are represented with quantitative indices that can be presented statistically. For the sake of better understanding, the index for evaluation of accessibility for advanced medical care is shown, as an example, in **Figure 2**.

As this method aims to obtain comparable evaluation indices of new and ongoing projects, the index for each factor is normalized using standard deviations (difference from the mean divided by the standard deviation gives the commonly known Z-score, which is further transformed into another scale by the formula, 10 times the z-score plus 50, with the normalized average of 50). Averaging the value of normalized index of all factors, the overall relative evaluation index for each route can be obtained. While computing the indices, an appropriate weight is assigned to each factor as deemed necessary.

Figure 3 shows the flowchart of process to decide on how to deal with each route under the evaluation framework of this method. Using this method, judgments can be made on whether the ongoing construction be continued or not, the project be executed as a toll road or not, or on the priority ranking to be assigned to each route. This provides an objective basis for the expressway companies to

decide on which route should be constructed in accordance with the viability of investment as determined by future traffic volume or the debt repayment method.

I think these methods are stringent enough to act as a judicious brake on new investments.

### (2) Reduction in construction cost

The possibility of drastic reduction in total project cost in the future was another much discussed issue. The policy directions as laid down in the report "Now, the Time of Change!" issued in May of 2002 by the road working group of the council for social infrastructure development, indeed, provide a useful and elaborate framework for a more detail discussion on this issue. Specifically, a significant cost reduction can be achieved by revising the conventional uniform design standards to suit more to local conditions and thereby introducing so called local design standards. These local standards will include many cost-cutting measures, for example; on sections with little traffic only two-lane road will be built instead of the present approach of planning four-lane road width but temporarily constructing only two lanes; simple and compact interchange

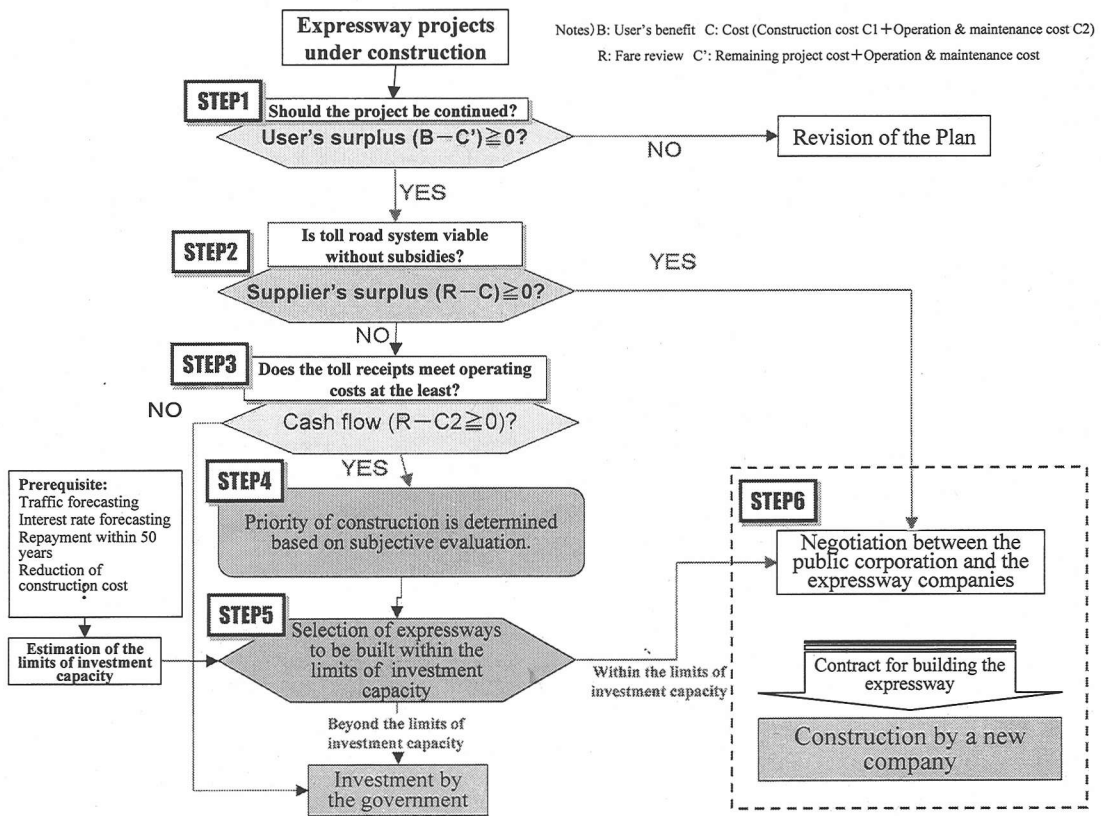


Figure 3. Proposed evaluation procedure of under construction expressway

like a diamond shape will be built, rather than a complicated trumpet shape; or the height of embankment or length of bridges or tunnels will be reduced by adopting appropriate alignment. Also drastic cost reduction is possible through reduction of number of lanes from six to four or of the number of crossing structures by integrating crossroads. New construction techniques such as the use of tunnel boring machine or lightweight embankment materials will be introduced to lower the construction cost. In addition, it is proposed that further rationalization of construction procedure be promoted, the traditional contract method be improved, and contract units of construction works be appropriately sized so that the scale efficiency in execution can be enhanced.

In order to examine the feasibility of realizing above mentioned cost cutting measures, each highway public corporation conducted a detailed study, and finally showed a possibility of reducing the total cost of remaining projects (23 trillion yen) by as

much as 4 trillion yen. Given the fact that the total construction cost for all three routes of the Honshu-Shikoku Bridges was approximately 2.9 trillion yen (the estimated cost at the time of initiation), it can be concluded that the cost reduction figure indicated a possibility of cutting down an extremely huge amount of cost.

### (3) Introduction of new approach for project financing and management

For constructing new routes it may be desirable to encourage the participation of not only the new expressway companies, which are immediate successors of the existing highway public corporations, but also other private companies, as this ensures competitiveness in road construction and management markets. Particularly, private companies, which can mobilize the necessary financial resources for the construction and recognize that the future road management is viable as a private business may participate in these markets signing a

concession contract with the government. For this, it would be appropriate to design such new contract adopting the concept of Value Engineering (VE) method in order to provide incentives for promoting efficiencies in road construction. It is expected that the benefit of privatizing the toll road projects can be greatly maximized by introducing such new approaches.

## 5. FORECASTING FUTURE TRAFFIC VOLUME

The recent traffic forecast by the Ministry of Land, Infrastructure and Transportation shows that traffic volume in Japan will gradually increase, and reach its peak in the early 2020's. A member of the commission, who took a position that the necessity of expressway construction is not well justified, expressed an opinion that the Ministry's traffic-forecast was grossly overestimated. Also, the problems concerning the estimation method itself were pointed out. This estimation used an approach in which the population holding a driver's license is firstly estimated using a logistic curve on the basis of the trend of composition of population in Japan, then total traffic volume throughout Japan is forecasted. The author can recognize some estimation problems that were pointed out. One is that a saturation level of license holder's population, which is a key parameter of the logistic curve, was a priori given. Anyway, it was strongly pointed out that a careful attention needs to be paid to forecast the future traffic demand.

Based on these opinions, there was a strong argument that the increase of future traffic volume in Japan would be much smaller than the previous forecast, and therefore it should be recognized that traffic volume on expressways would not increase in the future. Personally, I believe that a further increase in traffic volume is unfavorable, not least, considering global environmental problems. However, looking at the actual trend of car use or traffic forecast in the North America and West European countries, it is hard to find any situation specific only to Japan that convincingly justifies the scenario of no-traffic-growth in Japan.

The future traffic volume of expressways for each route is estimated based on this figure of demand

forecast for the whole country. As many individual factors should be considered for the estimation of each route, the route-specific estimation is subjected to more uncertainties than the nationwide traffic forecasting. The primary issue we have to focus on is the accuracy of traffic volume estimation for each route. In order to make a more realistic traffic forecast in the future, it is important to improve the accuracy of the estimation for the individual route, and also to check the robustness of estimation utilizing analytical techniques such as sensitivity analysis.

It goes without saying that making such a long-term forecasting with high accuracy is a very difficult task due to changes in external conditions. Therefore, for the long-term forecasting, the most we can do is to show a range with maximum and the minimum estimation as obtained by varying the exogenous factors for representing possible changing conditions and let the people understand the relationship between the exogenous factors and estimated volume.

Thus, for the financial appraisal of expressway projects, an assumption that the future traffic demand for expressways will not increase was setup as another basic premise.

## 6. REGIONAL DIVISION

Expressways in Japan are being operated by the following four public corporations: The Japan Highway Public Corporation, The Metropolitan Expressway Public Corporation, The Hanshin Expressway Public Corporation, and The Honshu-Shikoku Bridge Authority. The operational jurisdiction after their privatization is one of the core issues to be discussed.

There are precedents of privatization of infrastructure entities, which were divided into several regional companies, such as the case of electric power companies, Japan National Railway, and Nippon Telephone and Telegraph. These cases do not subject companies to competition within the regional market, and led to a situation of regional monopoly. Nevertheless, some degree of competition is present in services or prices. Also, the regional break down makes it possible for the com-

pany headquarter (located in corresponding regions) to oversee the local situations more effectively and this advantage may off-set possible demerits of the expansion of management organizations. Within the commission, it was proposed to constitute five regional companies covering the east Japan, the central Japan, the west Japan, Metropolitan, and Hanshin. The specifics of regional jurisdiction of each company should, in fact, be decided through a detail examination taking profitability and debt of each route into consideration.

A business, the performance of which is likely to be affected by the scale of company or accumulation of human expertise, is surely affected negatively by regional breakup. Typical examples are R & D or international activities. To attain a superior level of performance for such business, it is necessary to agglomerate the research function of each company and to maintain the mobility of technical experts among companies so as to optimally utilize their specific capabilities. In case, part of the construction cost is covered by subsidy funded by fare receipts, the subsidy fund needs to be managed fairly by single public entity as mentioned in the Section 3 (Proposal on overall organization structure), because there might be a significant disparity in burden-taking capability among regionally divided companies.

In any case, in order to minimize possible disadvantages caused by regional dividing, we must set up an appropriate institutional system, learning specifically from the past experiences such as privatization of the national railway. It is, however, regrettable that the commission rushed into a judgment and drafted the final report without carrying out adequate analysis on these important matters.

## 7. USAGE CHARGE OF EXPRESSWAYS

Usage charge of expressways in Japan is determined on the basis of so called principles of "redemption" and "fair burden". To put more specifically, the toll rate is set to recover the cost of construction, operation and maintenance within the stipulated time period. It is also confirmed that the toll charge is socially acceptable and economically justifiable, particularly when compared with user's

charge of other infrastructure services. The current toll rate set by the Japan Highway Public Corporation is 24.6 yen/km.

General users may find this rate too high and would naturally expect a reduction in the toll rate. Particularly, if the expected effects of expressway investment are not being generated due to underutilization of expressway primarily resulting from the resistance of higher toll rate, the situation can be, in fact, considered as an extreme loss to national economy. French civil engineers recognized such a loss more than 150 years ago and termed as dead weight loss. For such routes, a significant amount of toll reduction should be carried out to increase usage so as to generate spillover effects such as industrial development or improvement in quality of life.

On the other hand, some routes are suffering from severe congestion. Reduction in fare in such routes may generate additional traffic causing further congestion, and results in a rapid diminishing of the benefits of expressways, because traffic experts say, only a small percentage of additional traffic is enough to turn a smoothly flowing traffic on an expressway, which is close to its capacity, into a choking traffic jam.

Therefore, the toll charge of expressway should not be reduced uniformly across the country, the toll rate should rather be flexibly set taking the situation of individual routes into account. It is often reported that most of the expressways are in deficit and only few are recording a surplus. However, the traffic volume of many deficit-making routes is less than 10,000 vehicles/day and the average length of these routes is short, only about 100 km. On the contrary, the traffic volume of profit-making routes such as Tomei Expressway or Meishin Expressway exceeds 50,000 vehicles/day, and also they have longer route length. As the surplus making routes are already attracting higher traffic volumes, toll rate should not be reduced for these routes right away. Instead, a large reduction in toll rate should be made for underused routes in lagging regions in order to realize originally expected spillover effects.

Nevertheless, a recommendation was made in the Commission's final report to cut down the fare by 10% across the country from beginning of privatization. The fare receipts is then barely enough for



repayment of debt and it is almost impossible to use fare receipts to finance construction of new expressway in the future. Considering this fact, the author is convinced that the toll rate should be flexibly determined to be maintained at the present level for the routes that are attracting a large number of users, but be drastically reduced for routes with fewer users to increase the traffic volume. As long as this fare policy is followed, revenue will not be reduced drastically.

As for the toll rate to be charged by expressway companies, it should be regulated by setting up a price cap within the limit of which each company can set the actual toll rate depending upon individual route conditions.

## **8. MANAGING THE DEBT OF THE HONSHU-SHIKOKU BRIDGE AUTHORITY**

This is also one of the contentious discussion items among members of the commission. From 1973 through 1993, three bridge-routes connecting Honshu-Shikoku were constructed in sequence. It is hard to justify the allocation of huge resources in such short period from the viewpoints of national economy to make such a large-scale investment for these bridges for the sole purpose of connecting Shikoku Island with a population of just 4 million to the main island, Honshu. Although this kind of skepticism is quite reasonable, the debate should now be focused on how best these already built infrastructure could be utilized to make valuable contributions to regional development.

For this purpose, it is necessary to reduce the toll rate, to the extent possible, in order to fully realize the potential demand, since higher toll rate is primarily responsible for lower volume of traffic. In addition, it is important to formulate strategies for regional development such as promotion of tourism and industrial development in the region.

Annual revenue of the Honshu-Shikoku Bridge Authority for the year 2001 was 84.3 billion yen while annual expense including operation and maintenance cost and interests payment amounted to 149.9 billion yen resulting in a huge deficit. This situation is quite similar to that of Japan National Railways just before it was privatized. Therefore, in order to financially stabilize the business of these

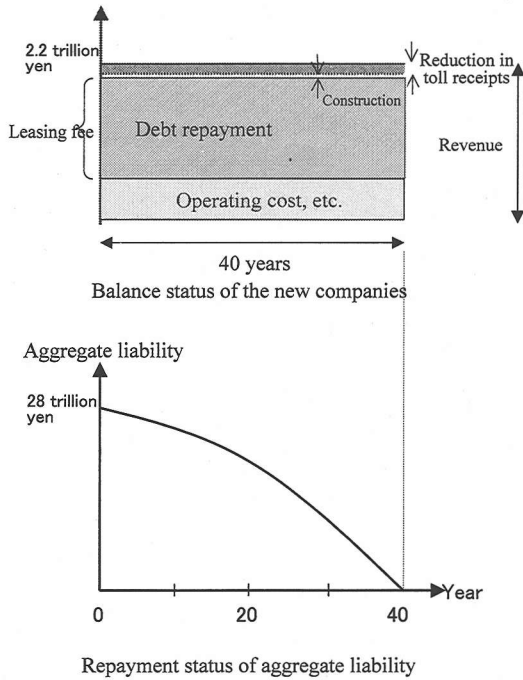
three routes in the future, public subsidy is urgently required. The subsidy measure agreed by the privatization commission included a provision to transfer part of the debt burden to the government. In addition, the national government and the local authorities that directly receive the benefits will extend the investment resources to reduce the interest-bearing debt, and to cut down the user's charge.

The local authority reacted to this plan by expressing their discontent to bear a new cost, and across the nation, questions were raised over the nationwide sharing of further cost for the Honshu-Shikoku Bridges, which primarily contribute to the local regions. However, considering possible impacts on local development to be generated from the fare reduction, the local authority should take an appropriate share of burden, and considering the value of the Honshu Shikoku Bridges as assets of the nation, nationwide distribution of a part of burden should not be unfair.

Henceforth, the road company that operates these bridges and the local authorities should make joint efforts to effectively utilize these large-scale infrastructures. We should learn from some examples in other countries, such as Forth Bridge in Scotland, Golden Gate Bridge in San Francisco, and Bay Bridge in Sydney. These are representative national monuments and national technical assets, which attract a lot of tourists to respective regions. I sincerely wish that Honshu Shikoku Bridges with their beautiful scenery of the Seto Inland Sea where the Bridges including the world longest Akashi Strait Bridge span over would become a precious asset of the nation and could attract both domestic and foreign tourists for a long time in the future.

## **9. COMPLETE PRIVATIZATION OF EXPRESSWAY COMPANIES**

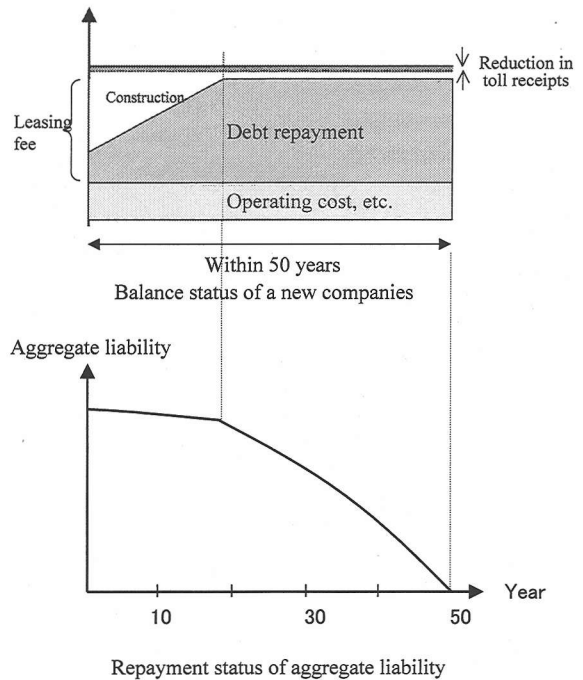
Newly established expressway companies would obtain usage rights of expressways by entering into a lease agreement with the expressway-holding entity and pay the leasing fee, which will be used for the repayment of debts. According to the recommended plan that was submitted as the opinion of the majority of the commission, the expressway companies will acquire the road assets after approximately ten years, and then get listed on the stock



**Figure 4.** Future Trend of debt repayment and construction resource as presented in the final report

market symbolizing a full-fledged privatization. However, even in the case of abandoning new construction investment completely and allocating all the cash flow for repayment of the debt, the debt balance after ten years will amount to as much as 30 trillion yen. Such a huge debt obligation will drastically undermine the credit worthiness of new companies and it might be impossible to persuade any banking establishment to make large-scale lending to these companies. The criterion of financial soundness set recently by the Industrial Revitalization Committee of the government, for instance, requires amount of interest-bearing debt to be less than 10 times of its annual cash flow.

In addition, if the companies own the expressways as a private asset, they should, of course, bear various kinds of tax obligations, such as corporate tax or real estate tax. According to the recommendations made in the final report, the toll charge will be reduced by 10% resulting in a revenue decrease by 10% while the debt repayment period is fixed as 40 years. Under such terms, companies will be expected, as a matter of course, not only to forget about new routes otherwise viable but also to face precarious financial conditions. Figure 4 illustrates



**Figure 5.** Future trend of debt repayment and construction resource proposed by the author

a plan strongly insisted on by some members of the commission that assumes no increase in traffic volume but claims that repayment of debt can be completed in 40 years period making payments in equal annual installment.

On the other hand, the author put forward an alternative scheme as illustrated in Figure 5. The scheme proposes to complete debt repayment in 50 years, and under the assumption of no growth of traffic demand and 4% percent interest rate, it allows for construction of new routes to be completed within the first 20 years. Here, the cash flow will be allocated for debt repayment and construction investment, and over the time, annual installment for repayment of the principal will be gradually increased along with the gradual decrease of the construction investment. As for toll, following the flexible approach of toll-setting which calls for taking demand situation on individual routes into account, 50% of the current rate is set for the route with 5,000 or less vehicles/day and 75% for the route with 10,000 or less vehicles/day. This demonstrates that the construction investment can be continued under the condition that the current annual amount of approximately 900 billion yen be

gradually decreased to 100 billion yen within 20 years, and the debt can still be repaid within 50 years.

Needless to add, there is significant risk due to various sources of uncertainties for such a long period of debt repayment, such as unexpected change in traffic demand or interest fluctuations. Therefore, it is necessary to regularly monitor the profit, remaining debt, and investment amount, and put control over the investment amount, if necessary, in order to ensure sustained repayment of debts. For that purpose, a new commission is proposed to persistently audit the situation and make recommendations, if necessary, for the appropriate actions to be taken. This will be just a transitional arrangement to be lasted only until the process of privatization is completed and the management is subjected to monitoring by market system.

## 10. CONCLUSION

As mentioned at the beginning, I believe that drastic institution reform through the process of privatization is necessary to improve the business efficiency and ensure sustained repayment of the huge amount of debt, since the expressway business has been largely developed within the institutional framework originally designed more than 40 years ago. However, we should not make a rush to achieve complete privatization, expecting free and advantageous business activities of private companies. It only shows a virtual image that is, in fact, very difficult to be realized.

Although the expressway has been rather developed, the fact that the benefits of expressway is still out of reach for as many as 30 million local residents simply shows the insufficiency of the network. We should not cause long-term damages for regional economy and discord among local regions by abandoning new expressway projects.

Under these considerations, I believe the most appropriate strategy to be followed now and in the future would point towards continuing construction of new expressways using toll receipts, maintaining the debt repayment, and improving the overall efficiency of expressway business. Having asked myself times and again, I have built more confidence

over my propositions. Now, I expect that the actual reformation be carried out along this direction in the future.

However, while I believe that my proposition presents the most rational approach and shows the way to realistically achieve the underlying objectives of reform, my opinion was in minority in the commission and some mass media did not support my opinion. I cannot stop thinking about the possible reasons. Along with development of social infrastructure including expressways, the marginal utility offered to the nation by the infrastructure has been diminishing to a large extent compared to that in early years. It is understandable that people today prefer consumption at present rather than investment for the future under such case of diminishing marginal utility. In addition, it is also true that many unfair business practices or misconducts associated with construction businesses are among the major contributing factors to such adverse reactions.

The discussion was conducted under shadow of dominant opinions, which have been fostered in the circumstances of such public perception. For implementing new expressway project needed for better living conditions in this country under such circumstances, it is absolutely necessary to create a analytically sophisticated evaluation method so as to explain the necessity in an easily understandable way to the majority of the people, showing the process and the result of the project with a high degree of transparency.

All of the proceedings of discussions of the commission can be accessed through the Website of the "Prime Minister of Japan and His Cabinet" as conference minutes of the Commission for the Privatization of the Four Highway-related Public Corporations.

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